REMARKS

Claims 1, 3-5, 7 and 9-11 remain in this application. Claims 1 and 7 were amended to address informalities. No new matter has been introduced. Favorable reconsideration is respectfully requested.

Claims 1, 4-5, 7, 9 and 11 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Takami et al.* (IEEE ICASSP 1992), in view of *Alleva et al.* (U.S. Patent No. 5,794,197). Claims 3 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Takami et al.* (IEEE ICASSP 1992), in view of *Alleva et al.* (U.S. Patent No. 5,794,197) and further in view of *Phillip et al.*. (U.S. Patent No. 6,501,833). For the following reasons, Applicants respectfully submit that the claims of the present application are patentable over the art of record and respectfully request that the rejections be withdrawn.

Specifically, the prior art, alone or in combination, does not disclose "adapting the probability density function by modifying the vocabulary by splitting the probability density function into a first probability density function and into a second probability density function if a drop of an entropy value is below a predetermined threshold, wherein the adaptation is dynamically performed at run time" as recited in claim 1 and similarly recited in claim 7. The Office Action has conceded this point as to the *Takami* reference, and has attempted to rely on *Alleva* as allegedly disclosing these features. Applicants respectfully submit that *Alleva* also does not teach the aforementioned features and further does not cure the deficiencies of *Takami*.

The present claims require that adapting the probability density function by modifying the vocabulary is performed by splitting the probability density function into first and second probability density functions if a drop of an entropy value is below a predetermined threshold, wherein the adaptation is dynamically performed at run time. In contrast, *Alleva* discloses a method that gathers all output distributions (probability density functions) received for a selected state of a selected triphone in the training words in a root node of a senone tree (col. 3, lines 4-29). Under the disclosure of *Alleva*, *each node* of the tree is divided into two nodes by asking linguistic queries regarding the phonemes immediately to the left and right of the central phoneme of the triphone (col. 3, line 61 – col. 4, line 12). At a predetermined point, the tree creation stops, based on an entropy calculation, resulting in leaves representing clustered output distributions known as senones (see col.3, lines 7 to 23). Accordingly, *Alleva* does not disclose

splitting a probability density function, but instead performs the clustering of probability density functions (output distributions).

Additionally *Alleva* fails to disclose, that the adaptation is dynamically performed at run time as recited in the present claims. The disclosure in *Alleva* teaches that modeling and recognition is performed during training (see col. 3, line 7) in order to use all of the information available in a training data set. Furthermore, the operation of *Alleva* does address the problems that are dealt with in the present claims. The object of the method according to *Alleva* is to provide a method for modeling unseen triphones not encountered in a set of training words (see col. 3, lines 1 to 3). Accordingly, the method according to *Alleva* models the triphones from a limited training data set, that were not previously encountered.

In contrast, an object of the methods described in the claims is to recognize a predetermined vocabulary in a spoken language, whereby an adaptation of the acoustic model is accomplished at the run time (see specification page 3, lines 19 to 24 for further detail). Thus, the methods described in the present claims address adapting the acoustic model of a speech recognition system to particular pronunciation or idiom of a specific speaker, as an example. This is accomplished in the present claims by adapting the probability density function by modifying the vocabulary and splitting the probability density function into first and second probability density functions, if a drop of an entropy value is below a predetermined threshold, wherein the adaptation is dynamically performed at run time. Further detail of this feature can be found in the description on page 4, lines 20 to 23 and on page 5, lines 14 to 18.

It should be clear that the method disclosed in *Alleva* or *Takami* would not provide these function, because the modeling and recognition accuracy of the methods is restricted to the training material available. Accordingly, the method does not achieve the same advantageous effect, because the method has to be set in a separate training phase to the modification of the vocabulary. Under the prior art, a self-adaptation becomes necessary due to a modified co-articulation of the speakers due to an addition of a new word. The teaching in *Phillips* also does not cure the deficiencies of the prior art, discussed above.

In light of the above, Applicants respectfully submit that independent claims 1 and 7 of the present application, as well as claims 3-5 and 9-11 which respectfully depend therefrom, are both novel and non-obvious over the art of record. Accordingly, Applicants respectfully request

that a timely Notice of Allowance be issued in this case. If any additional fees are due in connection with this application as a whole, the Examiner is authorized to deduct such fees from deposit account no. 02-1818. If such a deduction is made, please indicate the attorney docket no. (0112740-440) on the account statement.

Respectfully submitted,

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